Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of claims:

1. (Previously presented) A laser power grid, comprising:

a plurality of continuous-work (cw) laser sources, for generating a plurality of light propagations, such that each of said light propagations is distinct by its wavelength;

a laser distribution grid comprising at least one optical fiber optically coupled to said plurality of light propagations, for transmitting said plurality of light propagations to an input signal;

a network of processing elements (PEs), each addressable by a corresponding distinct wavelength, and a plurality of optical-switch arrays of a number corresponding to a number of PEs, each of said optical-switch arrays serving a respective one of the PEs and comprising a number of optical switches corresponding to a number of said light propagations, the optical switches being coupled to said laser distribution grid and adapted for deflecting a predetermined portion of a single one of said light propagations, distinct by its wavelength, responsive to an input signal so that another PE served by another of said plurality of optical-switch arrays is designated, to thereby enable a wavelength addressing in which every PE in the network is assigned to a wavelength, as a receiving address, said input signal specifying which one of said light propagations, distinct by its wavelength, is desired, at each of said optical-switch arrays, wherein each of said optical-switch arrays is adapted to deflect light

propagations of different wavelengths, responsive to different input signals, and wherein, the remainder portion of said single one of said light propagations and the remainder of said plurality of light propagations continue to propagate through said laser distribution grid, to the other ones of said plurality of optical-switch arrays, where predetermined portions of other light propagations, distinct by their wavelength, are deflected, responsive to other input signals.

2. (Original)) The laser power grid of claim 1, wherein said laser distribution grid is formed as a plurality of optical fibers.

3. (Original) The laser power grid of claim 1, wherein said laser distribution grid is formed as a multi-mode fiber.

4. (Original) The laser power grid of claim 1, wherein said laser distribution grid is formed as a single-mode fiber.

5. (Original) The laser power grid of claim 1, wherein said at least one optical switch is an electroholographic switch.

6. (Original) The laser power grid of claim 5, wherein said at least one optical switch is operative by electric field multiplexing (EFM).

7. (Cancelled)

8. (Previously presented) The laser power grid of claim 1, wherein said a laser distribution grid is formed as one optical fiber, which is coupled to said plurality of optical

switches, with an optical wavelength demultiplexer upstream of said optical-switch array and an optical coupler downstream of said optical-switch array.

9. (Original) The laser power grid of claim 8, comprising an optical coupler for coupling optical fibers along the deflected course of the light propagation.

10. (Original) The laser power grid of claim 1, wherein said each optical switch is adapted to deflect a predetermined portion of said single light propagation of said distinct wavelength.

11. (Original) The laser power grid of claim 1, wherein said laser sources are fixed-wavelength laser sources.

12. (Original) The laser power grid of claim 1, wherein said laser sources are tunable laser sources.

13. (Previously presented) A data network, comprising:

a laser power grid, which comprises:

a plurality of continuous-work (cw) laser sources, for generating a plurality of light propagations, such that each of said light propagations is distinct by its wavelength;

a laser distribution grid comprising at least one optical fiber optically coupled to said plurality of light propagations, for transmitting said plurality of light propagations; to an input signal;

a plurality of processing element (PE), each addressable by a corresponding distinct wavelength, each electronically coupled to one of said plurality of optical-switch arrays, for providing said input signal, for deflecting said single one of

said plurality of light propagations of said distinct wavelength;

a plurality of optical-switch arrays, each of said optical-switch arrays serving a respective one of the PEs of a number corresponding to a number of PEs and comprising a number of optical switches corresponding to a number of said light propagations, the optical switches being coupled to said laser distribution grid, and adapted for deflecting a predetermined portion of a single one of said light propagations, distinct by its wavelength, responsive to an input signal so that another PE served by another of said plurality of optical-switch arrays is designated to thereby enable a wavelength addressing in which every PE in the network is assigned to a wavelength, as a receiving address;

a plurality of optical modulators, each electronically coupled to one of said plurality of PEs and optically coupled to said one of said optical-switch arrays, associated with said PE, for modulating said single light propagation of said distinct wavelength, responsive to an electronic information of said PE, for forming an optical data packet of a distinct wavelength for transmission to a PE configured to receive said distinct wavelength.

14. (Original) The data network of claim 13, adapted for single-wavelength data transmission.

15. (Original) The data network of claim 13, comprising an optical coupler, for receiving data packets from said modulators and for coupling said data packets to an optical fiber, for wavelength division multiplexing (WDM).

16. (Original) The data network of claim 15, wherein said WDM is a coarse wavelength division multiplexing (CWDM).

17. (Original) The data network of claim 15, wherein said WDM is a dense wavelength division multiplexing (DWDM).

18. (Original) The data network of claim 15, comprising a demultiplexer, optically coupled to said optical fiber for decoupling said data packets, in accordance with their wavelengths.

19. (Previously presented) The data network of claim 18, wherein said wavelength addressing provides that each of said optical data packets is routed to a receiving PE, as determined by said distinct wavelength of said optical data packet.

20. (Previously Presented) The data network of claim 19, wherein any one of said plurality of PEs may be assigned a wavelength address and may act as said receiving PE.

21. (Previously Presented) The data network of claim 20, wherein the number of said plurality of PEs is less than or equal to the number of said plurality of cw laser sources, and each of said plurality of PEs is assigned a wavelength address.

22. (Currently Amended) The data network of claim 13, wherein said ~~second~~ plurality of PEs is arranged in a U plurality of clusters, for a multi-cluster design, ~~comprising~~and said data network further comprises: a ~~second~~ plurality of routing switches, each electronically coupled to

one of said ~~second~~ plurality of PEs, for receiving an input signal therefrom, and each optically coupled to an output of one of said ~~second~~ plurality of optical modulators, for routing data packets issuing from said optical modulators to a U^2 plurality of output optical couplers, responsive to said input signals from said plurality of PEs[[;]], each of said U^2 plurality of output optical couplers being designated by an output cluster and an input cluster[[,]]; and a U plurality of input optical couplers, for coupling data packets arriving in said U^2 plurality of output optical couplers to a U plurality of optical fibers, each designated by an input cluster.

23. (Currently Amended) The data network of claim 22, further comprising a U plurality of demultiplexers, each optically coupled to one of said U plurality of optical fibers, for decoupling said data packets, in accordance with their wavelengths.

24. (Cancelled)

25. (Currently Amended) The data network of claim 22, wherein said U plurality of clusters includes at least one of input clusters and output clusters ~~is~~ distributed among different locations.

26. (Currently Amended) The data network of claim 13, wherein said ~~second~~ plurality of PEs is distributed among a Q plurality of locations, and said data network further

comprises~~comprising~~: a Q plurality of output optical couplers, for coupling a plurality of data packets to be transmitted from each location to a Q plurality of output optical fibers; a central optical coupler, for coupling said Q plurality of output optical fibers to a single, central fiber; a demultiplexer, optically coupled to said single, central fiber, for decoupling said data packets, in accordance with their wavelengths.

27. (Currently Amended) The data network of claim 26, further comprising a Q plurality of input optical couplers, for coupling a plurality of data packets heading to said Q plurality of locations, into a Q plurality of input optical fibers, each leading to one location, the coupling being based on wavelength addresses of PEs in each location.

28. (Currently Amended) The data network of claim 27, further comprising a Q plurality of input demultiplexers, each optically coupled to one of said input optical fibers, for decoupling said data packets, in accordance with their wavelengths.

29. (Original)) The data network of claim 13, wherein said laser distribution grid is formed as a plurality of optical fibers.

30. (Original) The data network of claim 13, wherein said laser distribution grid is formed as a multi-mode fiber.

31. (Original) The data network of claim 13, wherein said laser distribution grid is formed as a single-mode fiber.

32. (Original) The laser power grid of claim 13, wherein said at least one optical switch is an electroholographic switch.

33. (Original) The laser power grid of claim 32, wherein said at least one optical switch is operative by electric field multiplexing (EFM).

34. (Previously Presented) The laser power grid of claim 13, wherein at least one of said plurality of optical-switch arrays includes a plurality of optical switches, equal to said plurality of light propagations, each optical switch being optically coupled to said laser distribution grid, and each optical switch being adapted for deflecting a single one of said light propagations of said distinct wavelength, responsive to said input signal.

35. (Previously Presented) The laser power grid of claim 34, wherein said a laser distribution grid is formed as one optical fiber, which is coupled to said plurality of optical switches, with an optical wavelength demultiplexer upstream of said optical-switch array and an optical coupler downstream of said optical-switch array.

36. (Original) The laser power grid of claim 35, comprising an optical coupler for coupling optical fibers along the deflected course of the light propagation.

37. (Original) The data network of claim 13, wherein said each optical switch is adapted to deflect a predetermined

portion of said single light propagation of said distinct wavelength.

38. (Original) The laser power grid of claim 13, wherein said laser sources are fixed-wavelength laser sources.

39. (Original) The data network of claim 13, wherein said laser sources are tunable laser sources.

40-41. (Canceled)

42. (Previously presented) A method of data transmitting, comprising:

providing a laser power grid, which comprises:

a plurality of continuous-work (cw) laser sources, for generating a plurality of light propagations, such that each of said light propagations is distinct by its wavelength;

a laser distribution grid comprising at least one optical fiber optically coupled to said plurality of light propagations, for transmitting said plurality of light propagations; to an input signal;

a plurality of processing element (PE), each addressable by a corresponding distinct wavelength, each electronically coupled to one of said plurality of optical-switch arrays, for providing said input signal, for deflecting said single one of said plurality of light propagations of said distinct wavelength;

a plurality of optical-switch arrays, each of said optical-switch arrays serving a respective one of the PEs of a number corresponding to a number of PEs and comprising a number of optical switches corresponding to a number of said light propagations, the optical switches being coupled to said

laser distribution grid, and adapted for deflecting a predetermined portion of a single one of said light propagations, distinct by its wavelength, responsive to an input signal so that another PE served by another of said plurality of optical-switch arrays is designated to thereby enable a wavelength addressing in which every PE in the network is assigned to a wavelength, as a receiving address;

electronically coupling said plurality of PEs to said plurality of optical-switch arrays, each PE being adapted to provide said input signal, for deflecting said single light propagation of said distinct wavelength, associated with said each PE; and

modulating said single light propagation of said distinct wavelength, responsive to an electronic information of said each PE, for forming an optical data packet of a distinct wavelength for transmission to the PE configured to receive said distinct wavelength.

43. (Previously presented) A laser power grid, comprising:

a plurality of continuous-work (cw) laser sources, for generating a first plurality of light propagations, such that each of said first light propagations is distinct by its wavelength;

a laser distribution grid comprising at least one optical fiber optically coupled to said plurality of light propagations, for transmitting said first plurality of light propagations; to an input signal;

a plurality of processing element (PE), each addressable by a corresponding distinct wavelength, each electronically coupled to one of said plurality of optical-switch arrays, for providing said input signal, for deflecting said single one of

said plurality of light propagations of said distinct wavelength;

a plurality of optical-switch arrays, each of said optical-switch arrays serving a respective one of the PEs of a number corresponding to a number of PEs and comprising a number of optical switches corresponding to a number of said light propagations, the optical switches being coupled to said laser distribution grid, and each of said optical-switch arrays being adapted for deflecting predetermined portions of a second plurality of light propagations, simultaneously, responsive to an input signal so that another PE served by another of said plurality of optical-switch arrays is designated,

wherein said second plurality of light propagations is not greater than said first plurality of light propagations,

and wherein, the remainder portions of said second plurality of light propagations and the remainder of said first plurality of light propagations continue to propagate through said laser distribution grid, to the other ones of said plurality of optical-switch arrays, where predetermined portions of other light propagations, distinct by their wavelength, are deflected, responsive to other input signals.

44-47. (Cancelled)

48. (Previously Presented) The laser power grid of claim 1, wherein each of said optical-switch arrays serving a PE is configured to directly address every PE coupled to said laser distribution grid.

49. (Previously Presented) The laser power grid of claim 1, wherein each of said optical-switch arrays serving a PE is configured to send data simultaneously to another PE coupled

to said laser distribution grid via plurality of light propagations.